

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
5 April 2001 (05.04.2001)

PCT

(10) International Publication Number
WO 01/23068 A1

(51) International Patent Classification⁷: **B01D 29/21,**
35/153, 35/16

Stephen [GB/GB]; 11 Woodfield Road, Talbot Green, Mid
Glamorgan CF7 8JF (GB).

(21) International Application Number: PCT/GB00/03607

(74) Agent: MERRYWEATHER, Colin, Henry; J.A. Kemp
& Co., 14 South Square, Gray's Inn, London WC1R 5LX
(GB).

(22) International Filing Date:
20 September 2000 (20.09.2000)

(25) Filing Language: English

(81) Designated States (*national*): JP, US.

(26) Publication Language: English

(84) Designated States (*regional*): European patent (AT, BE,
CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC,
NL, PT, SE).

(30) Priority Data:
9923064.1 29 September 1999 (29.09.1999) GB

(71) Applicant (*for all designated States except US*): FRAM
EUROPE LIMITED [GB/GB]; Llantrisant Industrial Es-
tate, Llantrisant, Pontyclun, Glamorgan CF7 8YU (GB).

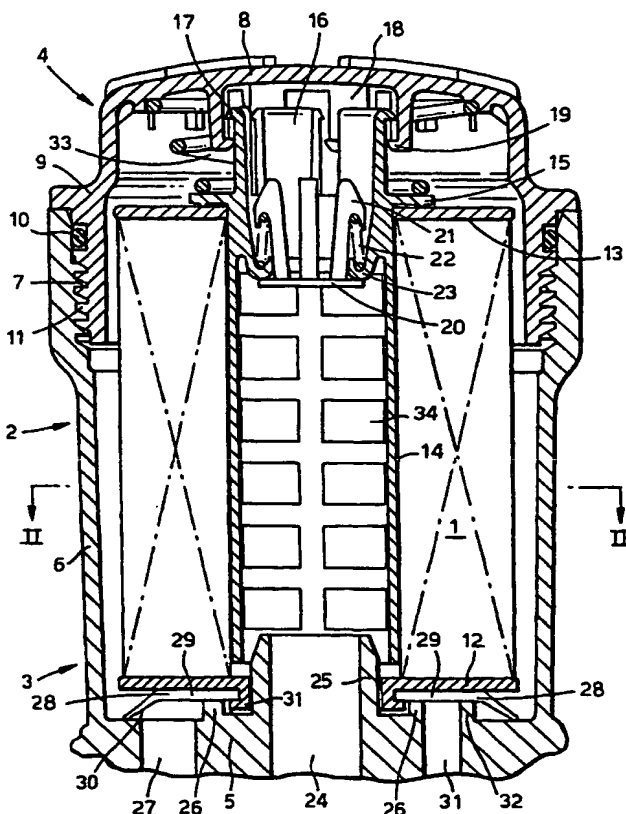
Published:
— With international search report.

(72) Inventor; and

(75) Inventor/Applicant (*for US only*): MULES, Robert,

*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: FILTER ASSEMBLY WITH DRAIN OUTLET



(57) Abstract: A fluid filter assembly for filtering a fluid, such as oil in a combustion engine. The fluid filter assembly comprises a housing (2) having a fluid inlet (27) and a fluid outlet (24); and a filter element (1) mounted on a support (12, 13, 14) within the housing between the fluid inlet (27) and the fluid outlet (24). The housing (2) also has a drain outlet (31). The filter element is annular (1) and includes an annular end wall (12) extending around one end of the filter element (1). The annular end wall (12) closes the drain outlet (31). The filter element support (12, 13, 14) is retained on a removable cap (4) which is fitted to a base, together constitute the housing (2). A resilient loading element in the form of a spring (33) biases the support (12, 13, 14) against the drain outlet (31) and loads the sealing faces of the support (12, 13, 14) which seal the filter element (1) between the fluid inlet (27) and the fluid outlet (24). The annular end wall (12) of the support has a resilient annular valve element (28) comprising a base portion (29) disposed adjacent the annular end wall (12) which seals the drain outlet (31) and a flap (30) extending from the base portion (29) to close the fluid inlet (27) and constitute a non-return valve.

WO 01/23068 A1